

PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

PCT

To:

see form PCT/ISA/220

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**
(PCT Rule 43bis.1)

Date of mailing
(day/month/year) see form PCT/ISA/210 (second sheet)

Applicant's or agent's file reference
see form PCT/ISA/220

FOR FURTHER ACTION
See paragraph 2 below

International application No.
PCT/GB2005/000781

International filing date (day/month/year)
01.03.2005

Priority date (day/month/year)
19.03.2004

International Patent Classification (IPC) or both national classification and IPC
B65G47/84, B65G29/00

Applicant
THE BOC GROUP PLC

1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☐ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☐ Box No. VII Certain defects in the international application
- ☐ Box No. VIII Certain observations on the international application

2. **FURTHER ACTION**

If a demand for international preliminary examination is made, this opinion will usually be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA"). However, this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1 bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of three months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

Name and mailing address of the ISA:



European Patent Office - P.B. 5818 Patentlaan 2
NL-2280 HV Rijswijk - Pays Bas
Tel. +31 70 340 - 2040 Tx: 31 651 epo nl
Fax: +31 70 340 - 3016

Authorized Officer

Papatheofrastou, M

Telephone No. +31 70 340-4422



Box No. I Basis of the opinion

1. With regard to the **language**, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.
 - ☐ This opinion has been established on the basis of a translation from the original language into the following language , which is the language of a translation furnished for the purposes of international search (under Rules 12.3 and 23.1(b)).
2. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:
 - a. type of material:
 - ☐ a sequence listing
 - ☐ table(s) related to the sequence listing
 - b. format of material:
 - ☐ in written format
 - ☐ in computer readable form
 - c. time of filing/furnishing:
 - ☐ contained in the international application as filed.
 - ☐ filed together with the international application in computer readable form.
 - ☐ furnished subsequently to this Authority for the purposes of search.
3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
4. Additional comments:

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.
PCT/GB2005/000781

Box No. V Reasoned statement under Rule 43*bis*.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes: Claims	2-10,12,13,16,17-20,24-28
	No: Claims	1,11,14,15,21-23
Inventive step (IS)	Yes: Claims	2-10,12,13,16,17-20,25
	No: Claims	1,11,14,15,21-24,26-28
Industrial applicability (IA)	Yes: Claims	1-28
	No: Claims	

2. Citations and explanations

see separate sheet

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING
AUTHORITY (SEPARATE SHEET)**

International application No.

PCT/GB2005/000781

Re Item V.

1. Reference is made to the following documents:

D1: US-A-6 112 880 (FLIX ET AL) 5 September 2000 (2000-09-05)

D2: US-A-4 469 217 (MEYER ET AL) 4 September 1984 (1984-09-04)

2. INDEPENDENT CLAIM 1

- 2.1 The present application does not meet the criteria of Article 33(1) PCT, because the subject-matter of claim 1 is not new in the sense of Article 33(2) PCT.

Document D1 discloses in column 2, line 33 to column 3, line 60, figures 1-3 (the references in parentheses applying to this document):

A star wheel (1) for a conveyor system, the star wheel (1) comprising first and second segments (11,12) each having a perimeter adapted to receive articles (40) to be conveyed, the segments (11,12) being rotatable about a common axis (21) at different speeds and means (column 2, lines 46-50) for controlling rotation of the segments so as to avoid clashing between one segment and the other segment or any articles conveyed thereby.

- 2.2 Document D2 also discloses the technical features of claim 1.

3. INDEPENDENT CLAIM 21

- 3.1 The present application does not meet the criteria of Article 33(1) PCT, because the subject-matter of claim 21 is not new in the sense of Article 33(2) PCT.

Document D1 also discloses (the references in parentheses applying to this document):

Apparatus for conveying articles (40) from a first station to a second station, the

apparatus comprising a star wheel (1) according to any preceding claim, a first conveyor (4) for conveying articles (40) from the first station to the star wheel (1), a first drive for driving the first conveyor (4), a second conveyor (5) for conveying articles (40) from the star wheel (1) to the second station, and a second drive for driving the second conveyor (5).

4. DEPENDENT CLAIMS 11, 14, 15, 22-24, 26-28

Dependent claims 11, 14, 15, 22-24, 26-28 do not contain any features which, in combination with the features of any claim to which they refer, meet the requirements of the PCT in respect of novelty and/or inventive step (Article 33(2) and (3) PCT).

5. INDEPENDENT CLAIM 17

- 5.1 Document D1, which is considered to represent the most relevant state of the art, discloses (the references in parentheses applying to this document):

A star wheel (1) for a conveyor system, the star wheel comprising first (11) and second segments (12) each having a perimeter adapted to receive articles (40) to be conveyed, a first shaft (2) for rotating the first segment (11) about an axis (21), a second shaft for rotating the second segment (12) about the axis (21).

From this, the subject-matter of independent claim 17 differs in that:

It comprises means for resiliently connecting the first shaft to the second shaft, means for connecting the first shaft to a first drive for rotating the first and second shafts together about the axis, and means for selectively connecting the second shaft to a second drive for rotating the second shaft about the axis at a different speed from the first shaft.

- 5.2 The subject-matter of claim 17 is therefore novel (Article 33(2) PCT)

The problem to be solved by the present invention may be regarded as:

How to ensure the return of the second segment in the appropriate position when restarting the first segment after a stoppage. And driving the second segment during a stoppage of the first segment and its related drive, in order to have continuity of the feeding of the articles by the star even after the stoppage of the first segment.

- 5.3 The solution to this problem proposed in claim 17 of the present application is considered as involving an inventive step (Article 33(3) PCT) for the following reasons:

None of the available prior art discloses this novel way of resiliently connecting the first shaft to the second shaft and providing two different drives for selectively rotating the second shaft.

- 5.4 Claims 18, 19 are dependent on claim 17 and as such also meet the requirements of the PCT with respect to novelty and inventive step. It has to be noted here that claim 18 erroneously depends on claim 1, the wording of claim 18 point to the fact that this dependency is an obvious error.

6. INDEPENDENT CLAIM 20

- 6.1 Document D1, which is considered to represent the most relevant state of the art, discloses (the references in parentheses applying to this document):

A star wheel (1) for a conveyor system, the star wheel comprising first (11) and second segments (12) rotatable about a common axis (21), each segment having a perimeter adapted to receive articles (40) to be conveyed.

From this, the subject-matter of independent claim 20 differs in that:

It comprises a first servo arrangement for connecting the first segment to one of a first and a second drive, and a second servo arrangement for connecting the second segment to the other of the first and second drive, wherein the first and second servo arrangements are arranged to synchronously change the drive to which each segment is connected.

6.2 The subject-matter of claim 20 is therefore novel (Article 33(2) PCT)

The problem to be solved by the present invention may be regarded as:

How to ensure the driving of the second segment during a stoppage of the first segment in order to have continuity of feeding of the articles by the star even if the first segment and its related drive have stopped.

6.3 The solution to this problem proposed in claim 20 of the present application is considered as involving an inventive step (Article 33(3) PCT) for the following reasons:

None of the available prior art discloses this novel way of connecting the first segment through a servo arrangement to one of the two drives and the second segment through another independent servo arrangement to the other of the drives and providing these two different drives for selectively rotating the second shaft in order to rotate a part of the star even after the first segment is stopped.